



# ***GPS Modernization Activities: Progress & Challenges***

***Ensuring Cyber Security and CNAV Capability***

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# ***CNAV Testing***

- **AFSPC will begin conducting Civil Navigation (CNAV) signal testing in Jun 2013**
- **The CNAV tests are part of the OCX developmental baseline test program for fielding the L2C and L5 civil signals**
- **AFSPC will conduct a series of tests, nominally 1-2 times per year for 1-2 week intervals**
- **No GPS satellite outages are anticipated as a result of the testing**



# ***CNAV Testing Objective***

- **CNAV tests provide an opportunity to involve civil manufactures and users in the evaluation process of the L2C and L5 civil signals**
- **CNAV will be extensively tested to verify planned capabilities and desired effects do not degrade currently fielded military or civil User Equipment**
- **Testing will be conducted on all L2C/L5 capable satellites (currently, 7 IIR-M & 3 IIF satellites)**
  - **A Fourth IIF satellite (GPS IIF-4) is scheduled to launch this month, but will not be part of the initial testing due to on-orbit checkout timelines**



# ***CNAV Test Plan***

- **CNAV live-sky testing is projected to take place 15-29 Jun 13**
- **CNAV message types will be tested in an incremental fashion IAW with the program baseline plans**
- **During the 2-week test period, uploads will take place every day utilizing an offline software tool**
- **The test is focused on achieving two objectives:**
  - **Verify and validate the CNAV requirements specified in interface specifications (IS-GPS-200F, IS-GPS-705B)**
  - **Facilitate the development of robust, interface specification compliant L2C and L5 civil receivers**



# ***CNAV Way Ahead***

- **After CNAV testing in June, results will be analyzed**
  - **AFSPC/CC will determine whether CNAV uploads will continue periodically in between test events**
- **The GPS OCX ground segment is projected to come online in 2016 and support full CNAV performance and functionality**
  - **This includes CNAV signal monitoring capability**
- **We have high confidence that GPS will continue to meet or exceed our world-wide civil and military Positioning, Navigation, and Timing commitments**



# ***PNT Cyber Security***

- **Top priority for AFSPC/CC**
- **Continually monitor AFSPC GPS networks for vulnerabilities to preserve & protect this critical national capability**
  - **Vulnerability assessments on-going to keep pace with ever growing cyber security threats**
- **Constantly assess the system to ensure AFSPC GPS hardware remains compliant with strict Information Assurance standards**
- **Ensure AFSPC GPS users receive annual training, and remain vigilant regarding potential threats**